SEQUENCE LISTING

<110> Manning, William C., Jr.
Dwarki, Varavani J.
Rendahl, Katherine
Zhou, Shang-Zhen
McGee, Laura H.
Lau, Dana
Flannery, John G.
Miller, Sheldon
Wang, Fei
Di Polo, Adriana

<120> USE OF RECOMBINANT GENE DELIVERY VECTORS
FOR TREATING OR PREVENTING DISEASES OF THE EYE

<130> PP1588.005 (20263.50)

<140> US/10/
<141> 2002-03-04

<160> 12

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 6514
<212> DNA
<213> Homo sapien

<400> 1
accatgtagc ggccctgcgc gctcgctcgc tcactgaggc cgcccgggca aagcccgggc 60
gtcgggcgac ctttggtcgc ccggcctcag tgagcgagcg agcgcgcaga gagggagtgg 120
ccaactccat cactaggggt tccttgtagt taatgattaa cccgccatgc tacttatcta 180
cgtagccatg ctctagggaa ttggccgcgg aatttcgact ctaggccatt gcatacgttg 240
tatctatatc ataatatgta catttatatt ggctcatgtc caatatgacc gccatgttga 300
cattgattat tgactagtta ttaatagtaa tcaattacgg ggtcattagt tcatagccca 360
tatatggagt tccgcgttac ataacttacg gtaaatggcc cgcctggctg accgcccaac 420
gacccccgcc cattgacgtc aataatgacg tatgttccca tagtaacgcc aatagggact 480
ttccattgac gtcaatgggt ggagtattta cggtaaactg cccacttggc agtacatcaa 540
gtgtatcata tgccaagtcc gcccccctatt gacgtcaatg acggtaaatg gcccgcctgg 600
cattatgccc agtacatgac cttacgggac tttcctactt ggcagtacat ctacgtatta 660
gtcatcgcta ttaccatggt gatgcggttt tggcagtaca ccaatgggcg tggatagcgg 720
tttgactcac ggggatttcc aagtctccac cccattgacg tcaatgggag tttgttttgg 780
caccaaaatc aacgggactt tccaaaatgt cgtaataacc ccgccccgtt gacgcaaatg 840
ggcggtaggc gtgtacggtg ggaggtctat ataagcagag ctcgtttagt gaaccgtcag 900
atcgcctgga gacgccatcc acgctgtttt gacctccata gaagacaccg ggaccgatcc 960
agcctccgcg gccgggaacg gtgcattgga acgcggattc cccgtgccaa gagtgacgta 1020
agtaccgcct atagactcta taggcacacc cctttggctc ttatgcatgc tatactgttt 1080
ttggcttggg gcctatacac ccccgctcct tatgctatag gtgatggtat agcttagcct 1140
ataggtgtgg gttattgacc attattgacc actcccctat tggtgacgat actttccatt 1200

actaatccat aacatggctc tttgccacaa ctatctctat tggctatatg ccaatactct 1260
gtccttcaga gactgacacg gactctgtat ttttacagga tggggtccat ttattattta 1320
caaattcaca tatacaacaa cgccgtcccc cgtgcccgca gtttttatta aacatagcgt 1380
gggatctccg acatctcggg tacgtgttcc ggacatgggc tcttctccgg tagcggcgga 1440
gcttccacat ccgagccctg gtcccatccg tccagcggct catggtcgct cggcagctcc 1500
ttgctcctaa cagtggaggc cagacttagg cacagcacaa tgcccaccac caccagtgtg 1560
ccgcacaagg ccgtggcggt agggtatgtg tctgaaaatg agctcggaga ttgggctcgc 1620
acctggacgc agatggaaga cttaaggcag cggcagaaga agatgcaggc agctgagttg 1680
ttgtattctg ataagagtca gaggtaactc ccgttgcggt gctgttaacg gtggagggca 1740
gtgtagtctg agcagtactc gttgctgccg cgcgcgccac cagacataat agctgacaga 1800
ctaacagact gttcctttcc atgggtcttt tctgcagtca ccgtcgtcga cctaagaatt 1860
caggcctaag cttcctaggt atcgatctcg agcaagtcta gagggagacc acaacggttt 1920
ccctctagcg ggatcaattc cgccccccgc cctaacgtta ctggccgaag ccgcttggaa 1980
taaggccggt gtgcgtttgt ctatatgtta ttttccacca tattgccgtc ttttggcaat 2040
gtgagggccc ggaaacctgg ccctgtcttc ttgacgagca ttcctagggg tctttccccc 2100
ctcgccaaag gaatgcaagg tctgttgaat gtcgtgaagg aagcagttcc tctggaagct 2160
tcttgaagac aaacaacgtc tgtagcgacc ctttgcaggc agcggaaccc cccacctggc 2220
gacaggtgcc tctgcggcca aaagccacgt gtataagata cacctgcaaa ggcggcacaa 2280
ccccagtgcc acgttgtgag ttggatagtt gtggaaagag tcaaatggct ctcctcaagc 2340
gtattcaaca aggggctgaa ggatgcccag aaggtacccc attgtatggg atctgatctg 2400
gggcctcggt gcacatgctt tacatgtgtt tagtcgaggt taaaaaaacg tctaggcccc 2460
ccgaaccacg gggacgtggt tttcctttga aaaacacgat aataccatgg ccgccgggag 2520
catcaccacg ctgccagccc tgccggagga cggcggcagc ggcgctttcc cgccgggcca 2580
cttcaaggac cccaagcggc tgtactgcaa gaacgggggc ttcttcctgc gcatccaccc 2640
cgacggccga gtggacgggg tccgcgagaa gagcgaccca cacatcaaac tacaacttca 2700
agcagaagag agaggggttg tgtctatcaa aggagtgtgt gcaaaccgtt accttgctat 2760
gaaagaagat ggaagattac tagcttctaa atgtgttaca gacgagtgtt tctttttga 2820
acgattggag tctaataact acaatactta ccggtcaagg aaatacacca gttggtatgt 2880
ggcactgaaa cgaactgggc agtataaact tggatccaaa acaggacctg ggcagaaagc 2940
tatacttttt cttccaatgt ctgctaagag ctgatcttaa tggcagcatc tgatctcatt 3000
ttacatgaag ctggtggcat ccctgtgacc cctccccagt gcctctcctg gccctggaag 3060
ttgccactcc agtgcccacc agccttgtcc taataaaatt aagttgcatc attttgtctg 3120
actaggtgtc cttctataat attatggggt ggaggggggt ggtatggagc aaggggcaag 3180
ttgggaagac aacctgtagg gcctgcgggg tctattggga accaagctgg agtgcagtgg 3240
cacaatcttg gctcactgca atctccgcct cctgggttca agcgattctc ctgcctcagc 3300
ctcccgagtt gttgggattc caggcatgca tgaccaggct cagctaattt ttgtttttt 3360
ggtagagacg gggtttcacc atattggcca ggctggtctc caactcctaa tctcaggtga 3420
tctacccacc ttggcctccc aaattgctgg gattacaggc gtgaaccact gctcccttcc 3480
ctgtccttct gattttaaaa taactatacc agcaggagga cgtccagaca cagcataggc 3540
tacctggcca tgcccaaccg gtgggacatt tgagttgctt gcttggcact gtcctctcat 3600
gcgttgggtc cactcagtag atgcctgttg aattatcgga tccactacgc gttagagctc 3660
gctgatcagc ctcgactgtg ccttctagtt gccagccatc tgttgtttgc ccctcccccg 3720
tgccttcctt gaccctggaa ggtgccactc ccactgtcct ttcctaataa aatgaggaaa 3780
ttgcatcgca ttgtctgagt aggtgtcatt ctattctggg gggtggggtg gggcaggaca 3840
gcaaggggga ggattgggaa gacaatagca gggggggtggg cgaagaactc cagcatgaga 3900
tccccgcgct ggaggatcat ccagccaatt ccctagagca tggctacgta gataagtagc 3960
atggcgggtt aatcattaac tacaaggaac ccctagtgat ggagttggcc actccctctc 4020
tgcgcgctcg ctcgctcact gaggccgggc gaccaaaggt cgcccgacgc ccgggctttg 4080
cccgggcggc ctcagtgagc gagcgagcgc gcagggggtg ggcgaagaac tccagcatga 4140
gatccccgcg ctggaggatc atccagccgg cgtcccggaa aacgattccg aagcccaacc 4200
tttcatagaa ggcggcggtg gaatcgaaat ctcgtgatgg caggttgggc gtcgcttggt 4260
cggtcatttc gaaccccaga gtcccgctca gaagaactcg tcaagaaggc gatagaaggc 4320
gatgcgctgc gaatcgggag cggcgatacc gtaaagcacg aggaagcggt cagcccattc 4380
gccgccaagc tcttcagcaa tatcacgggt agccaacgct atgtcctgat agcggtccgc 4440

cacacccagc cggccacagt cgatgaatcc agaaaagcgg ccattttcca ccatgatatt 4500
cggcaagcag gcatcgccat gggtcacgac gagatcctcg ccgtcgggca tgcgcgcctt 4560
gagcctggcg aacagttcgg ctggcgcgag cccctgatgc tcttcgtcca gatcatcctg 4620
atcgacaaga ccggcttcca tccgagtacg tgctcgctcg atgcgatgtt tcgcttggtg 4680
gtcgaatggg caggtagccg gatcaagcgt atgcagccgc cgcattgcat cagccatgat 4740
ggatactttc tcggcaggag caaggtgaga tgacaggaga tcctgccccg gcacttcgcc 4800
caatagcagc cagtcccttc ccgcttcagt gacaacgtcg agcacagctg cgcaaggaac 4860
gcccgtcgtg gccagccacg atagccgcgc tgcctcgtcc tgcagttcat tcagggcacc 4920
ggacaggtcg gtcttgacaa aaagaaccgg gcgcccctgc gctgacagcc ggaacacggc 4980
ggcatcagag cagccgattg tctgttgtgc ccagtcatag ccgaatagcc tctccaccca 5040
agcggccgga gaacctgcgt gcaatccatc ttgttcaatc atgcgaaacg atcctcatcc 5100
tgtctcttga tcagatcttg atcccctgcg ccatcagatc cttggcggca agaaagccat 5160
ccagtttact ttgcagggct tcccaacctt accagagggc gccccagctg gcaattccgg 5220
ttcgcttgct gtccataaaa ccgcccagtc tagctatcgc catgtaagcc cactgcaagc 5280
tacctgcttt ctctttgcgc ttgcgttttc ccttgtccag atagcccagt agctgacatt 5340
catccggggt cagcaccgtt tctgcggact ggctttctac gtgttccgct tcctttagca 5400
gcccttgcgc cctgagtgct tgcggcagcg tgaagctgtc aattccgcgt taaatttttg 5460
ttaaatcagc tcatttttta accaataggc cgaaatcggc aaaatcccct ataaatcaaa 5520
agaatagccc gagatagggt tgagtgttgt tccagtttgg aacaagagtc cactattaaa 5580
gaacgtggac tccaacgtca aagggcgaaa aaccgtctat cagggcgatg gcggatcagc 5640
ttatgcggtg tgaaataccg cacagatgcg taaggagaaa ataccgcatc aggcgctctt 5700
ccgcttcctc gctcactgac tcgctgcgct cggtcgttcg gctgcggcga gcggtatcag 5760
ctcactcaaa ggcggtaata cggttatcca cagaatcagg ggataacgca ggaaagaaca 5820
tgtgagcaaa aggccagcaa aaggccagga accgtaaaaa ggccgcgttg ctggcgtttt 5880
tccataggct ccgcccccct gacgagcatc acaaaaatcg acgctcaagt cagaggtggc 5940
gaaacccgac aggactataa agataccagg cgtttccccc tggaagctcc ctcgtgcgct 6000
ctcctgttcc gaccctgccg cttaccggat acctgtccgc ctttctccct tcgggaagcg 6060
tggcgctttc tcatagctca cgctgtaggt atctcagttc ggtgtaggtc gttcgctcca 6120
agctgggctg tgtgcacgaa ccccccgttc agcccgaccg ctgcgcctta tccggtaact 6180
atcgtcttga gtccaacccg gtaagacacg acttatcgcc actggcagca gccactggta 6240
acaggattag cagagcgagg tatgtaggcg gtgctacaga gttcttgaag tggtggccta 6300
actacggcta cactagaagg acagtatttg gtatctgcgc tctgctgaag ccagttacct 6360
tcggaaaaag agttggtagc tcttgatccg gcaaacaaac caccgctggt agcggcggtt 6420
ttttgtttgc aagcagcaga ttacgcgcag aaaaaaagga tctcaagaag atcctttgat 6480
cttttcttac tgaacggtga tccccaccgg aatt 6514

<210> 2
<211> 5610
<212> DNA
<213> Homo sapien

<400> 2
aaaacttgcg gccgcggaat ttcgactcta ggccattgca tacgttgtat ctatatcata 60
atatgtacat ttatattggc tcatgtccaa tatgaccgcc atgttgacat tgattattga 120
ctagttatta atagtaatca attacggggt cattagttca tagcccatat atggagttcc 180
gcgttacata acttacggta aatggcccgc ctggctgacc gcccaacgac ccccgcccat 240
tgacgtcaat aatgacgtat gttcccatag taacgccaat agggactttc cattgacgtc 300
aatgggtgga gtatttacgg taaactgccc acttggcagt acatcaagtg tatcatatgc 360
caagtccgcc ccctattgac gtcaatgacg gtaaatggcc cgcctggcat tatgcccagt 420
acatgacctt acgggacttt cctacttggc agtacatcta cgtattagtc atcgctatta 480
ccatggtgat gcggttttgg cagtacacca atgggcgtgg atagcggttt gactcacggg 540
gatttccaag tctccaccc attgacgtca atgggagttt gttttggcac caaaatcaac 600
gggactttcc aaaatgtcgt aataaccccg ccccgttgac gcaaatgggc ggtaggcgtg 660

tacggtggga ggtctatata agcagagctc gtttagtgaa ccgtcagatc gcctggagac 720
gccatccacg ctgttttgac ctccatagaa gacaccggga ccgatccagc ctccgcggcc 780
gggaacggtg cattggaacg cggattcccc gtgccaagag tgacgtaagt accgcctata 840
gactctatag gcacacccct ttggctctta tgcatgctat actgtttttg gcttggggcc 900
tatacacccc cgctccttat gctataggtg atggtatagc ttagcctata ggtgtgggtt 960
attgaccatt attgaccact cccctattgg tgacgatact ttccattact aatccataac 1020
atggctcttt gccacaacta tctctattgg ctatatgcca atactctgtc cttcagagac 1080
tgacacggac tctgtatttt tacaggatgg ggtccattta ttatttacaa attcacatat 1140
acaacaacgc cgtcccccgt gcccgcagtt tttattaaac atagcgtggg atctccgaca 1200
tctcgggtac gtgttccgga catgggctct tctccggtag cggcggagct tccacatccg 1260
agccctggtc ccatccgtcc agcggctcat ggtcgctcgg cagctccttg ctcctaacag 1320
tggaggccag acttaggcac agcacaatgc ccaccaccac cagtgtgccg cacaaggccg 1380
tggcggtagg gtatgtgtct gaaaatgagc tcggagattg ggctcgcacc tggacgcaga 1440
tggaagactt aaggcagcgg cagaagaaga tgcaggcagc tgagttgttg tattctgata 1500
agagtcagag gtaactcccg ttgcggtgct gttaacggtg gagggcagtg tagtctgagc 1560
agtactcgtt gctgccgcgc gcgccaccag acataatagc tgacagacta acagactgtt 1620
cctttccatg ggtcttttct gcagtcaccg tcgtcgacct aagaattcgc ccttcgaaac 1680
catgaacttt ctgctgtctt gggtgcattg gagccttgcc ttgctgctct acctccacca 1740
tgccaagtgg tcccaggctg cacccatggc agaaggagga gggcagaatc atcacgaagt 1800
ggtgaagttc atggatgtct atcagcgcag ctactgccat ccaatcgaga ccctggtgga 1860
catcttccag gagtaccctg atgagatcga gtacatcttc aagccatcct gtgtgcccct 1920
gatgcgatgc gggggctgct gcaatgacga gggcctggag tgtgtgccca ctgaggagtc 1980
caacatcacc atgcagatta tgcggatcaa acctcaccaa ggccagcaca taggagagat 2040
gagcttccta cagcacaaca aatgtgaatg cagaccaaag aaagatagag caagacaaga 2100
aaatccctgt gggccttgct cagagcggag aaagcatttg tttgtacaag atccgcagac 2160
gtgtaaatgt tcctgcaaaa acacagactc gcgttgcaag gcgaggcagc ttgagttaaa 2220
cgaacgtact tgcagatgtg acaagccgag gcggtgagcc gggcaggagg aaggagcctc 2280
cctcagggtt tcgggaacca gatctctcac caggaaagac tgatacagaa agggcgaatt 2340
caggcctaag cttcctaggt atcgatctcg agcaagtcta gaaagccatg gatatcggat 2400
ccactacgcg ttagagctcg ctgatcagcc tcgactgtgc cttctagttg ccagccatct 2460
gttgtttgcc cctcccccgt gccttccttg accctggaag gtgccactcc cactgtcctt 2520
tcctaataaa atgaggaaat tgcatcgcat tgtctgagta ggtgtcattc tattctgggg 2580
ggtggggtgg ggcaggacag caagggggag gattgggaag acaatagcag gggggtgggc 2640
gaagaactcc agcatgagat ccccgcgctg gaggatcatc cagctagcaa gtcccatcag 2700
tgatggagtt ggccactccc tctctgcgcg ctcgctcgct cactgaggcc gggcgaccaa 2760
aggtcgcccg acgcccgggc tttgcccggg cggcctcagt gagcgagcga gcgcgccagc 2820
gattctcttg tttgctccag actctcaggc aatgacctga tagcctttgt agagacctct 2880
caaaaatagc taccctctcc ggcatgaatt tatcagctag aacggttgaa tatcatattg 2940
atggtgattt gactgtctcc ggcctttctc acccgtttga atctttacct acacattact 3000
caggcattgc atttaaaata tatgagggtt ctaaaaattt ttatccttgc gttgaaataa 3060
aggcttctcc cgcaaaagta ttacagggtc ataatgtttt tggtacaacc gatttagctt 3120
tatgctctga ggctttattg cttaattttg ctaattcttt gccttgcctg tatgatttat 3180
tggatgttgg aattcctgat gcggtatttt ctccttacgc atctgtgcgg tatttcacac 3240
cgcatatggt gcactctcag tacaatctgc tctgatgccg catagttaag ccagccccga 3300
cacccgccaa cacccgctga cgcgccctga cgggcttgtc tgctcccggc atccgcttac 3360
agacaagctg tgaccgtctc cgggagctgc atgtgtcaga ggttttcacc gtcatcaccg 3420
aaacgcgcga gacgaaaggg cctcgtgata cgcctatttt tataggttaa tgtcatgata 3480
ataatggttt cttagacgtc aggtggcact tttcggggaa atgtgcgcgg aacccctatt 3540
tgtttatttt tctaaataca ttcaaatatg tatccgctca tgagacaata accctgataa 3600
atgcttcaat aatattgaaa aaggaagagt atgagtattc aacatttccg tgtcgccctt 3660
attccctttt ttgcggcatt ttgccttcct gtttttgctc acccagaaac gctggtgaaa 3720
gtaaaagatg ctgaagatca gttgggtgca cgagtgggtt acatcgaact ggatctcaac 3780
agcggtaaga tccttgagag ttttcgcccc gaagaacgtt ttccaatgat gagcactttt 3840
aaagttctgc tatgtggcgc ggtattatcc cgtattgacg ccgggcaaga gcaactcggt 3900

cgccgcatac actattctca gaatgacttg gttgagtact caccagtcac agaaaagcat 3960
cttacggatg gcatgacagt aagagaatta tgcagtgctg ccataaccat gagtgataac 4020
actgcggcca acttacttct gacaacgatc ggaggaccga aggagctaac cgcttttttg 4080
cacaacatgg gggatcatgt aactcgcctt gatcgttggg aaccggagct gaatgaagcc 4140
ataccaaacg acgagcgtga caccacgatg cctgtagcaa tggcaacaac gttgcgcaaa 4200
ctattaactg gcgaactact tactctagct tcccggcaac aattaataga ctggatggag 4260
gcggataaag ttgcaggacc acttctgcgc tcggcccttc cggctggctg gtttattgct 4320
gataaatctg gagccggtga gcgtgggtct cgcggtatca ttgcagcact ggggccagat 4380
ggtaagccct cccgtatcgt agttatctac acgacgggga gtcaggcaac tatggatgaa 4440
cgaaatagac agatcgctga gataggtgcc tcactgatta agcattggta actgtcagac 4500
caagtttact catatatact ttagattgat ttaaaacttc atttttaatt taaaaggatc 4560
taggtgaaga tccttttttga taatctcatg accaaaatcc cttaacgtga gttttcgttc 4620
cactgagcgt cagaccccgt agaaaagatc aaaggatctt cttgagatcc ttttttttctg 4680
cgcgtaatct gctgcttgca aacaaaaaaa ccaccgctac cagcggtggt ttgtttgccg 4740
gatcaagagc taccaactct ttttccgaag gtaactggct tcagcagagc gcagatacca 4800
aatactgtcc ttctagtgta gccgtagtta ggccaccact tcaagaactc tgtagcaccg 4860
cctacatacc tcgctctgct aatcctgtta ccagtggctg ctgccagtgg cgataagtcg 4920
tgtcttaccg ggttggactc aagacgatag ttaccggata aggcgcagcg gtcgggctga 4980
acgggggggtt cgtgcacaca gcccagcttg gagcgaacga cctacaccga actgagatac 5040
ctacagcgtg agctatgaga aagcgccacg cttcccgaag ggagaaaggc ggacaggtat 5100
ccggtaagcg gcagggtcgg aacaggagag cgcacgaggg agcttccagg gggaaacgcc 5160
tggtatcttt atagtcctgt cgggtttcgc cacctctgac ttgagcgtcg atttttgtga 5220
tgctcgtcag gggggcggag cctatggaaa aacgccagca acgcggcctt tttacggttc 5280
ctggcctttt gctggccttt tgctcacatg ttctttcctg cgttatcccc tgattctgtg 5340
gataaccgta ttaccgcctt tgagtgagct gataccgctc gccgcagccg aacgaccgag 5400
cgcagcgagt cagtgagcga ggaagcggaa gagcgcccaa tacgcaaacc gcctctcccc 5460
gcgcgttggc cgattcatta atgcagctgg cgcgctcgct cgctcactga ggccgcccgg 5520
gcaaagcccg ggcgtcgggc gacctttggt cgcccggcct cagtgagcga gcgagcgcgc 5580
agagagggag tggccaactc catcactgat 5610

<210> 3
<211> 7096
<212> DNA
<213> Homo sapien

<400> 3
aaaacttgcg gccgcggaat ttcgactcta ggccattgca tacgttgtat ctatatcata 60
atatgtacat ttatattggc tcatgtccaa tatgaccgcc atgttgacat tgattattga 120
ctagttatta atagtaatca attacggggt cattagttca tagcccatat atggagttcc 180
gcgttacata acttacggta aatggcccgc ctggctgacc gcccaacgac ccccgcccat 240
tgacgtcaat aatgacgtat gttcccatag taacgccaat agggactttc cattgacgtc 300
aatgggtgga gtatttacgg taaactgccc acttggcagt acatcaagtg tatcatatgc 360
caagtccgcc ccctattgac gtcaatgacg gtaaatggcc cgcctggcat tatgcccagt 420
acatgacctt acgggacttt cctacttggc agtacatcta cgtattagtc atcgctatta 480
ccatggtgat gcggttttgg cagtacacca atgggcgtgg atagcggttt gactcacggg 540
gatttccaag tctccacccc attgacgtca atgggagttt gttttggcac caaaatcaac 600
gggactttcc aaaatgtcgt aataaccccg ccccgttgac gcaaatgggc ggtaggcgtg 660
tacggtggga ggtctatata agcagagctc gtttagtgaa ccgtcagatc gcctggagac 720
gccatccacg ctgttttgac ctccatagaa gacaccggga ccgatccagc ctccgcggcc 780
gggaacggtg cattggaacg cggattcccc gtgccaagag tgacgtaagt accgcctata 840
gactctatag gcacacccct ttggctctta tgcatgctat actgtttttg gcttggggcc 900
tatacacccc cgctccttat gctataggtg atggtatagc ttagcctata ggtgtgggtt 960
attgaccatt attgaccact cccctattgg tgacgatact ttccattact aatccataac 1020
atggctcttt gccacaacta tctctattgg ctatatgcca atactctgtc cttcagagac 1080

```
tgacacggac tctgtatttt tacaggatgg ggtccattta ttatttacaa attcacatat    1140
acaacaacgc cgtcccccgt gcccgcagtt tttattaaac atagcgtggg atctccgaca    1200
tctcgggtac gtgttccgga catgggctct tctccggtag cggcggagct tccacatccg    1260
agccctggtc ccatccgtcc agcggctcat ggtcgctcgg cagctccttg ctcctaacag    1320
tggaggccag acttaggcac agcacaatgc ccaccaccac cagtgtgccg cacaaggccg    1380
tggcggtagg gtatgtgtct gaaaatgagc tcggagattg ggctcgcacc tggacgcaga    1440
tggaagactt aaggcagcgg cagaagaaga tgcaggcagc tgagttgttg tattctgata    1500
agagtcagag gtaactcccg ttgcggtgct gttaacggtg gagggcagtg tagtctgagc    1560
agtactcgtt gctgccgcgc gcgccaccag acataatagc tgacagacta acagactgtt    1620
cctttccatg ggtcttttct gcagtcaccg tcgtcgacct aagaattcgc cctttcacca    1680
tggtcagcta ctgggacacc ggggtcctgc tgtgcgcgct gctcagctgt ctgcttctca    1740
caggatctag ttcaggttca aaattaaaag atcctgaact gagtttaaaa ggcacccagc    1800
acatcatgca agcaggccag acactgcatc tccaatgcag gggggaagca gcccataaat    1860
ggtctttgcc tgaaatggtg agtaaggaaa gcgaaaggct gagcataact aaatctgcct    1920
gtggaagaaa tggcaaacaa ttctgcagta ctttaacctt gaacacagct caagcaaacc    1980
acactggctt ctacagctgc aaatatctag ctgtacctac ttcaaagaag aaggaaacag    2040
aatctgcaat ctatatattt attagtgata caggtagacc tttcgtagag atgtacagtg    2100
aaatccccga aattatacac atgactgaag gaagggagct cgtcattccc tgccgggtta    2160
cgtcacctaa catcactgtt actttaaaaa agtttccact tgacactttg atccctgatg    2220
gaaaacgcat aatctgggac agtagaaagg gcttcatcat atcaaatgca acgtacaaag    2280
aaatagggct tctgacctgt gaagcaacag tcaatgggca tttgtataag acaaactatc    2340
tcacacatcg acaaaccaat acaatcatag atgtccaaat aagcacacca cgcccagtca    2400
aattacttag aggccatact cttgtcctca attgtactgc taccactccc ttgaacacga    2460
gagttcaaat gacctggagt taccctgatg aaaaaaataa gagagcttcc gtaaggcgac    2520
gaattgacca aagcaattcc catgccaaca tattctacag tgttcttact attgacaaaa    2580
tgcagaacaa agacaaagga ctttatactt gtcgtgtaag gagtggacca tcattcaaat    2640
ctgttaacac ctcagtgcat atatatgata aagcattcat cactgtgaaa catcgaaaac    2700
agcaggtgct tgaaaccgta gctggcaagc ggtcttaccg gctctctatg aaagtgaagg    2760
catttccctc gccggaagtt gtatggttaa aagatgggtt acctgcgact gagaaatctg    2820
ctcgctattt gactcgtggc tactcgttaa ttatcaagga cgtaactgaa gaggatgcag    2880
ggaattatac aatcttgctg agcataaaac agtcaaatgt gtttaaaaac ctcactgcca    2940
ctctaattgt caatgtgaaa ccccagattt acgaaaaggc cgtgtcatcg tttccagacc    3000
cggctctcta cccactgggc agcagacaaa tcctgacttg taccgcatat ggtatccctc    3060
aacctacaat caagtggttc tggcacccct gtaaccataa tcattccgaa gcaaggtgtg    3120
acttttgttc caataatgaa gagtccttta tcctggatgc tgacagcaac atgggaaaca    3180
gaattgagag catcactcag cgcatggcaa taatagaagg aaagaataag atggctagca    3240
ccttggttgt ggctgactct agaatttctg gaatctacat ttgcatagct tccaataaag    3300
ttgggactgt gggaagaaac ataagctttt atatcacaga tgtgccaaat gggtttcatg    3360
ttaacttgga aaaaatgccg acggaaggag aggacctgaa actgtcttgc acagttaaca    3420
agttcttata cagagacgtt acttggattt tactgcggac agttaataac agaacaatgc    3480
actacagtat tagcaagcaa aaaatggcca tcactaagga gcactccatc actcttaatc    3540
ttaccatcat gaatgtttcc ctgcaagatt caggcaccta tgcctgcaga gccaggaatg    3600
tatacacagg ggaagaaatc ctccagaaga aagaaattac aatcagaggt gagcactgca    3660
acaaaaaggc tgttttctct cggatctcca aatttaaaag cacaaggaat gattgtacca    3720
cacaaagtaa tgtaaaacat taaaggactc attaaaaagt aacagttgtc tcatatcatc    3780
ttgatttatt gtcactgttg ctaactttca ggctcaaggg cgaattcagg cctaagcttc    3840
ctaggtatcg atctcgagca agtctagaaa gccatggata tcggatccac tacgcgttag    3900
agctcgctga tcagcctcga ctgtgccttc tagttgccag ccatctgttg tttgcccctc    3960
ccccgtgcct tccttgaccc tggaaggtgc cactcccact gtcctttcct aataaaatga    4020
ggaaattgca tcgcattgtc tgagtaggtg tcattctatt ctgggggggtg gggtggggca    4080
ggacagcaag ggggaggatt gggaagacaa tagcaggggg gtgggcgaag aactccagca    4140
tgagatcccc gcgctggagg atcatccagc tagcaagtcc catcagtgat ggagttggcc    4200
actccctctc tgcgcgctcg ctcgctcact gaggccgggc gaccaaaggt cgcccgacgc    4260
ccgggctttg cccgggcggc ctcagtgagc gagcgagcgc gccagcgatt ctcttgtttg    4320
```

ctccagactc tcaggcaatg acctgatagc ctttgtagag acctctcaaa aatagctacc 4380
ctctccggca tgaatttatc agctagaacg gttgaatatc atattgatgg tgatttgact 4440
gtctccggcc tttctcaccc gtttgaatct ttacctacac attactcagg cattgcattt 4500
aaaatatatg agggttctaa aaatttttat ccttgcgttg aaataaaggc ttctcccgca 4560
aaagtattac agggtcataa tgtttttggt acaaccgatt tagctttatg ctctgaggct 4620
ttattgctta attttgctaa ttctttgcct tgcctgtatg atttattgga tgttggaatt 4680
cctgatgcgg tattttctcc ttacgcatct gtgcggtatt tcacaccgca tatggtgcac 4740
tctcagtaca atctgctctg atgccgcata gttaagccag ccccgacacc cgccaacacc 4800
cgctgacgcg ccctgacggg cttgtctgct cccggcatcc gcttacagac aagctgtgac 4860
cgtctccggg agctgcatgt gtcagaggtt ttcaccgtca tcaccgaaac gcgcgagacg 4920
aaagggcctc gtgatacgcc tatttttata ggttaatgtc atgataataa tggtttctta 4980
gacgtcaggt ggcacttttc ggggaaatgt gcgcggaacc cctatttgtt tatttttcta 5040
aatacattca aatatgtatc cgctcatgag acaataaccc tgataaatgc ttcaataata 5100
ttgaaaaagg aagagtatga gtattcaaca tttccgtgtc gcccttattc ccttttttgc 5160
ggcattttgc cttcctgttt ttgctcaccc agaaacgctg gtgaaagtaa aagatgctga 5220
agatcagttg ggtgcacgag tgggttacat cgaactggat ctcaacagcg gtaagatcct 5280
tgagagtttt cgccccgaag aacgttttcc aatgatgagc acttttaaag ttctgctatg 5340
tggcgcggta ttatcccgta ttgacgccgg gcaagagcaa ctcggtcgcc gcatacacta 5400
ttctcagaat gacttggttg agtactcacc agtcacagaa aagcatctta cggatggcat 5460
gacagtaaga gaattatgca gtgctgccat aaccatgagt gataacactg cggccaactt 5520
acttctgaca acgatcggag gaccgaagga gctaaccgct tttttgcaca acatggggga 5580
tcatgtaact cgccttgatc gttgggaacc ggagctgaat gaagccatac caaacgacga 5640
gcgtgacacc acgatgcctg tagcaatggc aacaacgttg cgcaaactat taactggcga 5700
actacttact ctagcttccc ggcaacaatt aatagactgg atggaggcgg ataaagttgc 5760
aggaccactt ctgcgctcgg cccttccggc tggctggttt attgctgata aatctggagc 5820
cggtgagcgt gggtctcgcg gtatcattgc agcactgggg ccagatggta agccctcccg 5880
tatcgtagtt atctacacga cggggagtca ggcaactatg gatgaacgaa atagacagat 5940
cgctgagata ggtgcctcac tgattaagca ttggtaactg tcagaccaag tttactcata 6000
tatactttag attgatttaa aacttcattt ttaatttaaa aggatctagg tgaagatcct 6060
ttttgataat ctcatgacca aaatccctta acgtgagttt tcgttccact gagcgtcaga 6120
ccccgtagaa aagatcaaag gatcttcttg agatcctttt tttctgcgcg taatctgctg 6180
cttgcaaaca aaaaaaccac cgctaccagc ggtggtttgt ttgccggatc aagagctacc 6240
aactcttttt ccgaaggtaa ctggcttcag cagagcgcag ataccaaata ctgtccttct 6300
agtgtagccg tagttaggcc accacttcaa gaactctgta gcaccgccta catacctcgc 6360
tctgctaatc ctgttaccag tggctgctgc cagtggcgat aagtcgtgtc ttaccgggtt 6420
ggactcaaga cgatagttac cggataaggc gcagcggtcg ggctgaacgg ggggttcgtg 6480
cacacagccc agcttggagc gaacgaccta caccgaactg agatacctac agcgtgagct 6540
atgagaaagc gccacgcttc ccgaagggag aaaggcggac aggtatccgg taagcggcag 6600
ggtcggaaca ggagagcgca cgagggagct tccagggga aacgcctggt atctttatag 6660
tcctgtcggg tttcgccacc tctgacttga gcgtcgattt ttgtgatgct cgtcaggggg 6720
gcggagccta tggaaaaacg ccagcaacgc ggcctttta cggttcctgg ccttttgctg 6780
gccttttgct cacatgttct ttcctgcgtt atcccctgat tctgtggata accgtattac 6840
cgcctttgag tgagctgata ccgctcgccg cagccgaacg accgagcgca gcgagtcagt 6900
gagcgaggaa gcggaagagc gcccaatacg caaaccgcct ctccccgcgc gttggccgat 6960
tcattaatgc agctggcgcg ctcgctcgct cactgaggcc gcccgggcaa agcccgggcg 7020
tcgggcgacc tttggtcgcc cggcctcagt gagcgagcga gcgcgcagag agggagtggc 7080
caactccatc actgat 7096

<210> 4
<211> 636
<212> DNA
<213> Homo sapien

<400> 4

```
atggctccct tagccgaagt cgggggcttt ctgggcggcc tggagggctt gggccagcag      60
gtgggttcgc atttcctgtt gcctcctgcc ggggagcggc cgccgctgct gggcgagcgc     120
aggagcgcgg cggagcggag cgcgcgcggc gggccggggg ctgcgcagct ggcgcacctg     180
cacggcatcc tgcgccgccg gcagctctat tgccgcaccg gcttccacct gcagatcctg     240
cccgacggca gcgtgcaggg cacccggcag gaccacagcc tcttcggtat cttggaattc     300
atcagtgtgg cagtgggact ggtcagtatt agaggtgtgg acagtggtct ctatcttgga     360
atgaatgaca aaggagaact ctatggatca gagaaactta cttccgaatg catctttagg     420
gagcagtttg aagagaactg gtataacacc tattcatcta acatatataa acatggagac     480
actggccgca ggtattttgt ggcacttaac aaagacggaa ctccaagaga tggcgccagg     540
tccaagaggc atcagaaatt tacacatttc ttacctagac cagtggatcc agaaagagtt     600
ccagaattgt acaaggacct actgatgtac acttga                               636
```

<210> 5
<211> 211
<212> PRT
<213> Homo sapien

<400> 5

```
Met Ala Pro Leu Ala Glu Val Gly Gly Phe Leu Gly Gly Leu Glu Gly
 1               5                  10                  15
Leu Gly Gln Gln Val Gly Ser His Phe Leu Leu Pro Pro Ala Gly Glu
            20                  25                  30
Arg Pro Pro Leu Leu Gly Glu Arg Arg Ser Ala Ala Glu Arg Ser Ala
        35                  40                  45
Arg Gly Gly Pro Gly Ala Ala Gln Leu Ala His Leu His Gly Ile Leu
    50                  55                  60
Arg Arg Arg Gln Leu Tyr Cys Arg Thr Gly Phe His Leu Gln Ile Leu
65                  70                  75                  80
Pro Asp Gly Ser Val Gln Gly Thr Arg Gln Asp His Ser Leu Phe Gly
                85                  90                  95
Ile Leu Glu Phe Ile Ser Val Ala Val Gly Leu Val Ser Ile Arg Gly
            100                 105                 110
Val Asp Ser Gly Leu Tyr Leu Gly Met Asn Asp Lys Gly Glu Leu Tyr
        115                 120                 125
Gly Ser Glu Lys Leu Thr Ser Glu Cys Ile Phe Arg Glu Gln Phe Glu
    130                 135                 140
Glu Asn Trp Tyr Asn Thr Tyr Ser Ser Asn Ile Tyr Lys His Gly Asp
145                 150                 155                 160
Thr Gly Arg Arg Tyr Phe Val Ala Leu Asn Lys Asp Gly Thr Pro Arg
                165                 170                 175
Asp Gly Ala Arg Ser Lys Arg His Gln Lys Phe Thr His Phe Leu Pro
            180                 185                 190
Arg Pro Val Asp Pro Glu Arg Val Pro Glu Leu Tyr Lys Asp Leu Leu
        195                 200                 205
Met Tyr Thr
    210
```

<210> 6
<211> 659
<212> DNA
<213> Homo sapien

<400> 6

```
gagcgcagcc ctgatggaat ggatgagatc tagagttggg accctgggac tgtgggtccg      60
```

actgctgctg gctgtcttcc tgctgggggt ctaccaagca taccccatcc ctgactccag 120
ccccctcctc cagtttgggg gtcaagtccg gcagaggtac ctctacacag atgacgacca 180
agacactgaa gcccacctgg agatcaggga ggatggaaca gtggtaggcg cagcacaccg 240
cagtccagaa agtctcctgg agctcaaagc cttgaagcca ggggtcattc aaatcctggg 300
tgtcaaagcc tctaggtttc tttgccaaca gccagatgga gctctctatg gatcgcctca 360
ctttgatcct gaggcctgca gcttcagaga actgctgctg gaggacggtt acaatgtgta 420
ccagtctgaa gcccatggcc tgcccctgcg tctgcctcag aaggactccc caaaccagga 480
tgcaacatcc tggggacctg tgcgcttcct gcccatgcca ggcctgctcc acgagcccca 540
agaccaagca ggattcctgc ccccagagcc cccagatgtg ggctcctctg acccccctgag 600
catggtagag cctttacagg gccgaagccc cagctatgcg tcctgactct tcctgaatc 659

<210> 7
<211> 210
<212> PRT
<213> Homo sapien

<400> 7
Met Glu Trp Met Arg Ser Arg Val Gly Thr Leu Gly Leu Trp Val Arg
 1   5   10   15
Leu Leu Leu Ala Val Phe Leu Leu Gly Val Tyr Gln Ala Tyr Pro Ile
            20   25   30
Pro Asp Ser Ser Pro Leu Leu Gln Phe Gly Gly Gln Val Arg Gln Arg
        35   40   45
Tyr Leu Tyr Thr Asp Asp Asp Gln Asp Thr Glu Ala His Leu Glu Ile
    50   55   60
Arg Glu Asp Gly Thr Val Val Gly Ala Ala His Arg Ser Pro Glu Ser
65   70   75   80
Leu Leu Glu Leu Lys Ala Leu Lys Pro Gly Val Ile Gln Ile Leu Gly
                85   90   95
Val Lys Ala Ser Arg Phe Leu Cys Gln Gln Pro Asp Gly Ala Leu Tyr
            100   105   110
Gly Ser Pro His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu Leu Leu
        115   120   125
Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly Leu Pro
    130   135   140
Leu Arg Leu Pro Gln Lys Asp Ser Pro Asn Gln Asp Ala Thr Ser Trp
145   150   155   160
Gly Pro Val Arg Phe Leu Pro Met Pro Gly Leu Leu His Glu Pro Gln
                165   170   175
Asp Gln Ala Gly Phe Leu Pro Pro Glu Pro Pro Asp Val Gly Ser Ser
            180   185   190
Asp Pro Leu Ser Met Val Glu Pro Leu Gln Gly Arg Ser Pro Ser Tyr
        195   200   205
Ala Ser
    210

<210> 8
<211> 5974
<212> DNA
<213> Homo sapien

<400> 8
aaaacttgcg gccgcggaat ttcgactcta ggccattgca tacgttgtat ctatatcata 60
atatgtacat ttatattggc tcatgtccaa tatgaccgcc atgttgacat tgattattga 120

ctagttatta atagtaatca attacggggt cattagttca tagcccatat atggagttcc 180
gcgttacata acttacggta aatggcccgc ctggctgacc gcccaacgac ccccgcccat 240
tgacgtcaat aatgacgtat gttcccatag taacgccaat agggactttc cattgacgtc 300
aatgggtgga gtatttacgg taaactgccc acttggcagt acatcaagtg tatcatatgc 360
caagtccgcc ccctattgac gtcaatgacg gtaaatggcc cgcctggcat tatgcccagt 420
acatgacctt acgggacttt cctacttggc agtacatcta cgtattagtc atcgctatta 480
ccatggtgat gcggttttgg cagtacacca atgggcgtgg atagcggttt gactcacggg 540
gatttccaag tctccacccc attgacgtca atgggagttt gttttggcac caaaatcaac 600
gggactttcc aaaatgtcgt aataaccccg ccccgttgac gcaaatgggc ggtaggcgtg 660
tacggtggga ggtctatata agcagagctc gtttagtgaa ccgtcagatc gcctggagac 720
gccatccacg ctgttttgac ctccatagaa gacaccggga ccgatccagc ctccgcggcc 780
gggaacggtg cattggaacg cggattcccc gtgccaagag tgacgtaagt accgcctata 840
gactctatag gcacacccct ttggctctta tgcatgctat actgtttttg gcttggggcc 900
tatacacccc cgctccttat gctataggtg atggtatagc ttagcctata ggtgtgggtt 960
attgaccatt attgaccact cccctattgg tgacgatact ttccattact aatccataac 1020
atggctcttt gccacaacta tctctattgg ctatatgcca atactctgtc cttcagagac 1080
tgacacggac tctgtatttt tacaggatgg ggtccattta ttatttacaa attcacatat 1140
acaacaacgc cgtcccccgt gcccgcagtt tttattaaac atagcgtggg atctccgaca 1200
tctcgggtac gtgttccgga catgggctct tctccggtag cggcggagct tccacatccg 1260
agccctggtc ccatccgtcc agcggctcat ggtcgctcgg cagctccttg ctcctaacag 1320
tggaggccag acttaggcac agcacaatgc ccaccaccac cagtgtgccg cacaaggccg 1380
tggcggtagg gtatgtgtct gaaaatgagc tcggagattg ggctcgcacc tggacgcaga 1440
tggaagactt aaggcagcgg cagaagaaga tgcaggcagc tgagttgttg tattctgata 1500
agagtcagag gtaactcccg ttgcggtgct gttaacggtg gagggcagtg tagtctgagc 1560
agtactcgtt gctgccgcgc gcgccaccag acataatagc tgacagacta acagactgtt 1620
cctttccatg ggtcttttct gcagtcaccg tcgtcgacct aagaattcag gtatggctgc 1680
tggttctatc actaccctgc cagctctgcc agaagacggt ggttctggtg ccttcccacc 1740
aggtcacttc aaagacccaa aacgtctgta ctgcaaaaac ggtggtttct tcctgcgcat 1800
ccaccccgac ggccgagtgg acggggtccg cgagaagagc gacccacaca tcaaactaca 1860
acttcaagca gaagagagag ggggttgtgtc tatcaaagga gtgtgtgcaa accgttacct 1920
tgctatgaaa gaagatggaa gattactagc ttctaaatgt gttacagacg agtgtttctt 1980
ttttgaacga ttggagtcta ataactacaa tacttaccgg tcaaggaaat acaccagttg 2040
gtatgtggca ctgaaacgaa ctgggcagta taaacttgga tccaaaacag gacctgggca 2100
gaaagctata ctttttcttc caatgtctgc taagagctga tcttaatggc agcatctgat 2160
ctcattttac atgaagcttc ctaggtatcg atctcgagca agtctagaaa gccatggata 2220
tcggatccac tacgcgttag agctcgctga tcagcctcga ctgtgccttc tagttgccag 2280
ccatctgttg tttgcccctc ccccgtgcct tccttgaccc tggaaggtgc cactcccact 2340
gtcctttcct aataaaatga ggaaattgca tcgcattgtc tgagtaggtg tcattctatt 2400
ctggggggtg gggtggggca ggacagcaag ggggaggatt gggaagacaa tagcaggggg 2460
gtgggcgaag aactccagca tgagatcccc gcgctggagg atcatccagc tagcaagtcc 2520
catcagtgat ggagttggcc actccctctc tgcgcgctcg ctcgctcact gaggccgggc 2580
gaccaaaggt cgcccgacgc ccgggctttg cccgggcggc ctcagtgagc gagcgagcgc 2640
gccagcgatt ctcttgtttg ctccagactc tcaggcaatg acctgatagc ctttgtagag 2700
acctctcaaa aatagctacc ctctccggca tgaatttatc agctagaacg gttgaatatc 2760
atattgatgg tgatttgact gtctccggcc tttctcaccc gtttgaatct ttacctacac 2820
attactcagg cattgcattt aaaatatatg agggttctaa aaatttttat ccttgcgttg 2880
aaataaaggc ttctcccgca aaagtattac agggtcataa tgtttttggt acaaccgatt 2940
tagctttatg ctctgaggct ttattgctta attttgctaa ttctttgcct tgcctgtatg 3000
atttattgga tgttggaatt cctgatgcgg tattttctcc ttacgcatct gtgcggtatt 3060
tcacaccgca tatggtgcac tctcagtaca atctgctctg atgccgcata gttaagccag 3120
ccccgacacc cgccaacacc cgctgacgcg ccctgacggg cttgtctgct cccggcatcc 3180
gcttacagac aagctgtgac cgtctccggg agctgcatgt gtcagaggtt ttcaccgtca 3240
tcaccgaaac gcgcgagacg aaagggcctc gtgatacgcc tatttttata ggttaatgtc 3300
atgataataa tggtttctta gacgtcaggt ggcacttttc ggggaaatgt gcgcggaacc 3360

cctatttgtt tatttttcta aatacattca aatatgtatc cgctcatgag acaataaccc 3420
tgataaatgc ttcaataatg tacccgtcaa gaaggcgata gaaggcgatg cgctgcgaat 3480
cgggagcggc gataccgtaa agcacgagga agcggtcagc ccattcgctt cagcaatatc 3540
acgggtagcc aacgctatgt cctgatagcg gtccgccaca cccagccggc cacagtcgat 3600
gaatccagaa aagcggccat tttccaccat gatattcggc aagcaggcat cgccatgggt 3660
cacgacgaga tcctcgccgt cgggcatgcg cgccttgagc ctggcgaaca gttcggctgg 3720
cgcgagcccc tgatgctctt cgtccagatc atcctgatcg acaagaccgg cttccatccg 3780
agtacgtgct cgctcgatgc gatgtttcgc ttggtggtcg aatgggcagg tagccggatc 3840
aagcgtatgc agccgccgca ttgcatcagc catgatggat actttctcgg caggagcaag 3900
gtgagatgac aggagatcct gccccggcac ttcgcccaat agcagccagt cccttcccgc 3960
ttcagtgaca acgtcgagca cagctgcgca aggaacgccc gtcgtggcca gccacgatag 4020
ccgcgctgcc tcgtcctgca gttcattcag ggcaccggac aggtcggtct tgacaaaaag 4080
aaccgggcgc ccctgcgctg acagccggaa cacggcggca tcagagcagc cgattgtctg 4140
ttgtgcccag tcatagccga atagcctctc cacccaagcg gccggagaac ctgcgtgcaa 4200
tccatcttgt tcaatcatgc gaaacgatcc tcatcctgtc tcttgatcag atcttgatcc 4260
cctgcgccat cagatccttg gcggcaagaa agccatccag tttactttgc agggcttccc 4320
aaccttacca gagggcgccc cagctggcaa ttccggttcg cttgctgtcc ataaaaccgc 4380
ccagtctagc tatcgccatg taagcccact gcaagctacc tgctttctct ttgcgcttgc 4440
gttttccctt gtccagatag cccagtagct gacattcatc cggggtcagc accgtttctg 4500
cggactggct ttctacgtgt tccgcttcct ttagcagccc ttgcgccctg agtgcttgcg 4560
gcagcgtgaa gctgtcaatt ccgcgttaaa tttttgttaa atcagctcat tttttaacca 4620
ataggccgaa atcggcaaaa tcccttataa atcaaaagaa tagcccgaga tagggttgag 4680
tgttgttcca gtttggaaca agagtccact attaaagaac gtggactcca acgtcaaagg 4740
gcgaaaaacc gtctatcagg gcgatggcgg atcagcttat gcggtgtgaa ataccgcaca 4800
gatgcgtaag gagaaaatac cgcatcaggc gctcttccgc ttcctcgctc actgactcgc 4860
tgcgctcggt cgttcggctg cggcgagcgg tatcagctca ctcaaaggcg gtaatacggt 4920
tatccacaga atcaggggat aacgcaggaa agaacatgcg gcgcgccaca tgtgagcaaa 4980
aggccagcaa aaggccagga accgtaaaaa ggccgcgttg ctggcgtttt tccataggct 5040
ccgccccccct gacgagcatc acaaaaatcg acgctcaagt cagaggtggc gaaacccgac 5100
aggactataa agataccagg cgtttccccc tggaagctcc ctcgtgcgct ctcctgttcc 5160
gaccctgccg cttaccggat acctgtccgc ctttctccct tcgggaagcg tggcgctttc 5220
tcatagctca cgctgtaggt atctcagttc ggtgtaggtc gttcgctcca agctgggctg 5280
tgtgcacgaa cccccgttc agcccgaccg ctgcgcctta tccggtaact atcgtcttga 5340
gtccaacccg gtaagacacg acttatcgcc actggcagca gccactggta acaggattag 5400
cagagcgagg tatgtaggcg gtgctacaga gttcttgaag tggtggccta actacggcta 5460
cactagaagg acagtatttg gtatctgcgc tctgctgaag ccagttacct tcggaaaaag 5520
agttggtagc tcttgatccg gcaaacaaac caccgctggt agcggcggtt ttttgtttgc 5580
aagcagcaga ttacgcgcag aaaaaaagga tctcaagaag atcctttgat cttttcttac 5640
tgaacggtga tccccaccgg aattgcggcc catgttcttt cctgcgttat cccctgattc 5700
tgtggataac cgtattaccg cctttgagtg agctgatacc gctcgccgca gccgaacgac 5760
cgagcgcagc gagtcagtga gcgaggaagc ggaagagcgc ccaatacgca aaccgcctct 5820
ccccgcgcgt tggccgattc attaatgcag ctggcgcgct cgctcgctca ctgaggccgc 5880
ccgggcaaag cccgggcgtc gggcgacctt tggtcgcccg gcctcagtga gcgagcgagc 5940
gcgcagagag ggagtggcca actccatcac tgat 5974

<210> 9
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide used for PCR amplification

<400> 9

ggtatttaaa acttgcggcc gcggaatttc gactctaggc c 41

<210> 10
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide used for PCR amplification

<400> 10
gctgcccggg acttgctagc tggatgatcc tccagcgcgg ggatctcatg 50

<210> 11
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 11
agatataagc ttaccatggg tgaaaagcgt ctcgccccca aa 42

<210> 12
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 12
cgcgcgctcg agaccatgag gaatattatc caaagcgaaa ct 42